

Claims

- [c1] 1. A method of hot switching data transfer rate on the bus, to dynamically switch the bus data transfer rate between a first control chip and a second control chip, comprising the steps of: the first control chip and the second control chip receiving a transfer rate switching command; when either there is no data transaction processed or the data transaction process is finished, the first control chip issuing a bus release connect command; the first control chip and the second control chip entering into the bus release connect state according to the bus release connect command; either the first control chip or the second control chip issuing a bus re-connect command; and the first control chip and the second control chip re-connecting to the changed data transfer rate according to the transfer rate switching command.
- [c2] 2. The method of hot switching data transfer rate on the bus of claim 1, wherein the first control chip is a north-bridge chip, and the second control chip is a south-bridge chip.
- [c3] 3. The method of hot switching data transfer rate on the bus of claim 2, wherein the data transfer rate is switched between four times the north-bridge chip clock frequency and eight times the north-bridge chip clock frequency.
- [c4] 4. The method of hot switching data transfer rate on the bus of claim 1, wherein the first control chip and the second control chip both have a transfer rate register for temporarily storing the transfer rate switching command.
- [c5] 5. A method of hot switching data transfer rate on the bus, comprising the steps of: a bus between a first control chip and a second control chip receiving a transfer rate switching signal before data transfer is interrupted; and when the first control chip and the second control chip are re-connecting, providing one of a plurality of data transfer rates to the bus according to the transfer rate switching signal.
- [c6] 6. The method of hot switching data transfer rate on the bus of claim 5, wherein the first control chip is a north-bridge chip, and the second control chip is a south-bridge chip.

[c7] 7. The method of hot switching data transfer rate on the bus of claim 6, wherein the data transfer rates at least comprise four times the north-bridge chip clock frequency and eight times the north-bridge chip clock frequency.

[c8] 8. The method of hot switching data transfer rate on the bus of claim 5, wherein the first control chip and the second control chip both have a transfer rate register for temporarily storing the transfer rate switching command.

[c9] 9. A method of hot switching data transfer rate on the bus, to dynamically switch a plurality of data transfer rates on a bus between a first control chip and a second control chip, comprising the steps of: the first control chip and the second control chip receiving a data transfer rate switching command, and temporarily storing the data transfer rate switching command into a transfer rate register of the first control chip and the second control chip; when either there is no data transaction processed or the data transaction process is finished, issuing a bus release connect command to have the first control chip and the second control chip enter into a bus release connect state; and when either the first control chip or the second control chip issues a bus re-connect command, the first control chip and the second control chip switching to one of the data transfer rates on the bus according to the content of the transfer rate register.

[c10] 10. The method of hot switching data transfer rate on the bus of claim 9, wherein the first control chip is a north-bridge chip, and the second control chip is a south-bridge chip.

[c11] 11. The method of hot switching data transfer rate on the bus of claim 10, wherein the data transfer rates at least comprise four times the north-bridge chip clock frequency and eight times the north-bridge chip clock frequency.